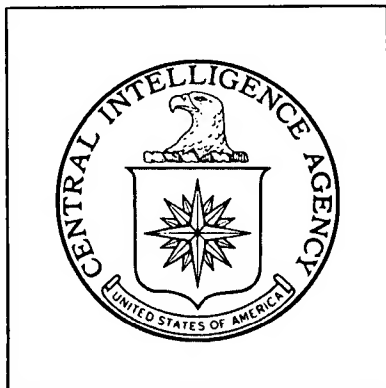


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**DIRECTORATE OF  
INTELLIGENCE**

**Industrial Facilities  
(Non-Military)**

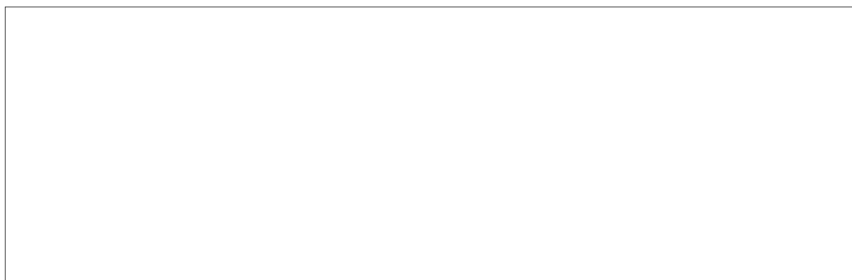
*Basic Imagery Interpretation Report*

**Hungnam Nitrogen Fertilizer Plant**

**Hungnam, North Korea**



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DATE JUNE 1969

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Directorate of Intelligence  
Imagery Analysis Service

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INSTALLATION OR ACTIVITY NAME		COUNTRY
Hungnam Nitrogen Fertilizer Plant		KN
UTM COORDINATES	GEOGRAPHIC COORDINATES	WAC-PIC NO
52SCV823102	39-50-03N 127-37-12E	0380-22E
MAP REFERENCE		
548th RTG. USATC 200, Sheet M0380-4HL, 4th edition, Apr 68, Scale 1:200,000 (SECRET)		
LATEST IMAGERY USED		NEGATION DATE (If required)
		Not Required

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## ABSTRACT

This report is a detailed analysis from high-resolution imagery of the Hungnam Nitrogen Fertilizer Plant in North Korea. It shows that the primary products of the plant are superphosphate and ammonia based fertilizers including urea, ammonium nitrate, and ammonium sulfate. Secondary products include sulfuric acid, nitric acid, and ammonia.

This study covers the period from [REDACTED] In October 1963, the plant contained sulfuric acid, ammonia, nitric acid, ammonium nitrate, ammonium sulfate and superphosphate production facilities. By October 1966, an additional sulfuric acid facility had been added, and by April 1968, a gas production area, a gas purification area, an additional ammonia synthesis facility, and urea production facilities had been added. The plant has been observed in operation on all photography utilized.

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This report includes a functional analysis, a photograph and detailed line drawing of the plant, a chronological summary of construction and production activity, and reference data.

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#### INTRODUCTION

The Hungnam Nitrogen Fertilizer Plant is located 6 nautical miles (nm) south-southeast of Hamhung. Electric power is received by the plant from the Hungnam Transformer Station, Fertilizer Plant [ ] and a transformer substation near the electrolysis building.

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The plant is situated in an industrial complex which includes the Hungnam Chemical Plant, Pongung [ ], the Hungnam Copper Refinery [ ] and the Hungnam Explosives Plant 17 [ ].

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#### BASIC DESCRIPTION

##### Physical Features

The fertilizer plant occupies an irregular-shaped area which measures approximately 6,400 by 1,800 feet and contains 265 acres. The plant is served by a good road and rail network and is accessible by water.

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### Operational Functions

The primary function of this plant is the production of superphosphate and ammonia based fertilizers, which include urea, ammonium nitrate, and ammonium sulfate. Secondary products of this plant include sulfuric acid, nitric acid, and ammonia. The specific production areas and major facilities are annotated on Figure 3.

### Chronology

Major portions of this plant pre-date the Korean Conflict of the early 1950's. However, the chronology in this report covers only the period from 1963 to 1968. During this period construction at the plant continued at a steady pace. The chronology of this construction is presented in the key to annotations for Figure 3.

### Production Activity

Fertilizers are produced in the superphosphate, ammonium sulfate, ammonium nitrate, and urea production areas using sulfuric acid, ammonia, nitric acid and carbon dioxide obtained from other areas of the plant as raw materials. Sulfuric acid is obtained by the Chamber Process in Area B1 and by contact process in Area B, both of which use pyrites as the source of sulfur. Ammonia is produced in Areas D and K, and part of the ammonia from Area D is oxidized in Area H to form nitric acid. Carbon dioxide is obtained from the gas production area (Area J).

Superphosphate is produced in Area A by reacting sulfuric acid with phosphate ore. Ammonium sulfate is produced in Area C by reacting sulfuric acid with ammonia. In Area G, ammonia is reacted with nitric acid to form ammonium nitrate. The production of urea in Area E is accomplished by combining ammonia with carbon dioxide.

On October 1963 photography, the ammonia, sulfuric acid (Chamber Process, Area B1), and nitric acid production areas were operating, and vapor emissions from the reactor sections of the ammonium sulfate and ammonium nitrate buildings, plus an ore stockpile at the superphosphate plant, indicated that these three areas were in operation as well. These areas have appeared to be in operation on all subsequent coverage.

The contact sulfuric acid production area (Area B) was first seen complete and in operation in October 1966. The presence of rail cars near the packing and shipping building indicated that the urea facilities were partially operational in October 1966, although these facilities were not seen completed until April 1968. On April 1968 photography, vapor coming from several areas indicated that the entire plant was in operation. Most of the plant appeared to be operating and no significant changes were noted on [ ] coverage.

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REFERENCES

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Map

548TH RTG. US Air Target Chart, Series 200, Sheet MO380-4HL, 4th edition,  
Apr 68, Scale 1:200,000 (SECRET)

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Document

I. CIA. IAS/SID Memorandum-123/68, The Nitrogen Fertilizer Complex  
and the Pongung Chemical Complex, Hungdogi-dong, North  
Korea, April 1968, (TOP SECRET RUFF)

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Requirement

EXSUBCOM - BR-N/003-69

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